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FRANCIS BLAKE (1850-1913)

Fellow in Class I, Section 2, 1881

Francis Blake was the son of Francis and Caroline (Trumbull) Blake of Needham.

June 25, 1873, he married Miss Elizabeth L. Hubbard, daughter of Charles T. Hubbard of Weston, who survives him, together with one son and a married daughter.

Mr. Blake completed his school training on graduating from the Brookline High School in 1866. Shortly thereafter he entered upon scientific work for which he had a great predilection, in the United States Coast Survey, remaining in this service for thirteen years. During this time he took part in the remarkable work carried on by the Survey in the telegraphic determination of longitude in the course of which were determined the differences of longitude between the foreign observatories at Greenwich and Paris and the American observatories at Cambridge and Washington, when for the first time the transatlantic cable was employed to transmit the electric signal. The accuracy of this work was such as to astonish the world.

Mr. Blake was exceedingly inventive and was strongly impressed with the description which Professor Hughes published of his recently invented microphone in the spring of 1878. At that time the new but rapidly developing art of telephony called for a more powerful and more sensitive form of transmitter than was available, one which should be free from the various imperfections that were present in existing instruments. The original Hughes microphone, while exquisitely sensitive, was entirely unfitted for practical use. Mr. Blake after studying the problem with a most remarkable appreciation of the details of construction which would be necessary to ensure satisfactory results, devised the well-known Blake Transmitter. This was thereupon put into service by the Bell Telephone Co. in November, 1878. Among the novel devices in the working parts of the instrument, the use of platinum as the material of the hammer electrode and carbon for the anvil electrode, the one carried by a flexible spring, the other by a somewhat stiff spring, the complete separation of both electrodes from rigid connection with the diaphragm, the surrounding of the carbon anvil electrode with a mass of spun brass, all went to secure a delicacy of operation and precise reproduction of the spoken word free from scratching and breaking which no previous microphone transmitter had even remotely approached, and which few even in later times have rivalled. For its purpose, transmission over short distances up to perhaps fifty miles, the Blake transmitter was abundantly satisfactory. It continued to be the standard instrument in this country and was largely used abroad until with the extension of telephone lines to great distances a more powerful transmitter was called for, which need was finally supplied by the modern granulated carbon transmitter. In this country, in 1910, there were 270,000 Blake transmitters in use, the maximum number reached. Through this invention, Mr. Blake became known throughout the whole scientific and industrial world.

During subsequent years he devoted himself constantly to experimenting, and invented various other devices mostly, though not wholly electrical in their nature.

Besides his fellowship in this Academy, Mr. Blake was a member of many other societies, among which were the American Antiquarian Society, the Archæological Institute of America, the American Folk Lore Society, the American Forestry Association. He was Treasurer of this Academy for a number of years, and a Director of the American Bell Telephone Co. and its successor, the American Telegraph and Telephone Co., from 1879 until his death. He was also a member of the Corporation of the Massachusetts Institute of Technology, in whose Departments of Physics and Electrical Engineering he was greatly interested, and to which he devoted much helpful thought, as well as material aid. He represented the Institute as a Trustee of the Boston Museum of Fine Arts, and was likewise a Trustee of the Massachusetts General Hospital.

Mr. Blake was a man of the highest personal and professional worth, firm in his principles, decided in his opinions, sanguine and earnest in the prosecution of his plans, but always considerate of the views of others and affable in his association with men.

Charles R. Cross.